

Conservative Management of Cutaneous Sinus Tract of Dental Origin : Report of Two Cases

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Abstract:-

Introduction: cutaneous sinus tract of dental origin is a pathological way that initiates in endobuccal area and exits in the cutaneous surface. It is a complication of a pulp necrosis, commonly misdiagnosed due to the rarity of occurrence and the lack of symptoms. The periapical infection spreads following the path of least resistance and breakthrough the skin to form draining sinus tracts. The aim of this paper is to describe through two cases the conservative approach of cutaneous sinus tract of dental origin.

Case report: Two female patients referred to our department with a chronically draining cutaneous lesion. Clinical and radiologic examination confirmed the dental origin of the lesion. Thus, an endodontic treatment was performed. few months later the lesion is totally healed.

Conclusion: The interdisciplinary consultation is the key of successful treatment of cutaneous sinus tract and may avoid misdiagnosis. The endodontic approach seems the treatment of choice and offer long term success.

Keywords:- Cutaneous sinus tract, dental origin, endodontic treatment.

I. INTRODUCTION

The sinus tract is defined as a drainage pathway of periapical disease. We describe multiple locations depending on severity of microorganism, resistance of host causal teeth and muscle insertion. Then we describe cutaneous and mucous fistulas.

Cutaneous sinus tract is well described in medical literature however still misdiagnosed and incorrectly treated making patient suffer [1]. frequently, odontogenic origin is overlooked because of the absence of dental symptoms.

The aim of this paper is to present a conservative management of two cases of cutaneous sinus tract with dental origin.

Healing and esthetic amelioration observed two weeks after correct endodontic treatment.

II. MATERIEL AND METHOD

A. First case:

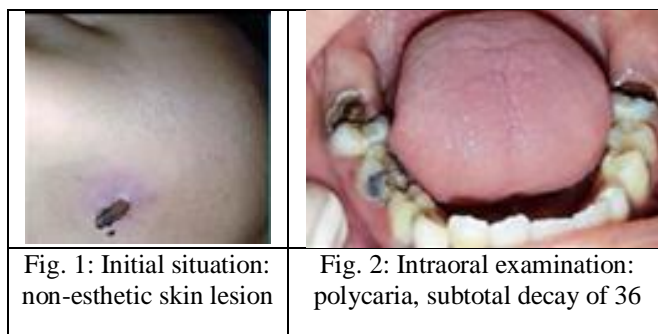
A healthy girl aged 10 years old reported to the Conservative Dentistry and Endodontics Department of CHU Farhat Hached with non-esthetic appearance of a skin lesion located in the left submandibular region. Evolving since 3 or 4 months.

Extraoral examination showed nodule soft with minimal purulent discharge on palpation (fig 1).

Intraoral examination revealed presence of polycaria with swelling and intraoral sinus tract regarding tooth n 36 which was sensitive to palpation and vertical percussion without mobility (fig 2).

A conventional intraoral periapical radiograph was performed, a periapical, large, non-limited radiolucency was found regarding left mandibular molars.

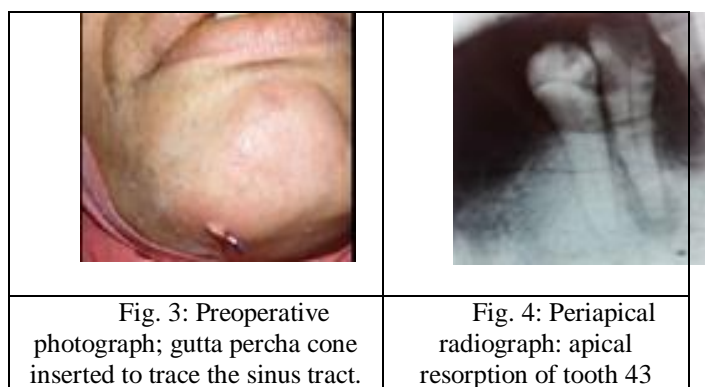
The diagnostic was a pulpal necrosis on tooth 36 complicated by chronical periapical periodontitis and cutaneous sinus tract development.



B. Second case:

Healthy female, 42 years old was referred to the Endodontic Department with a complaint of episodic drainage from a cutaneous persistent lesion in the submental region evolving in the last four months without regression despite several medical and surgical interventions of dermatologists. (fig 3.4)

The diagnostic was a suppurative apical periodontitis of the 43 and cutaneous sinus tract development.



C. treatment procedure:

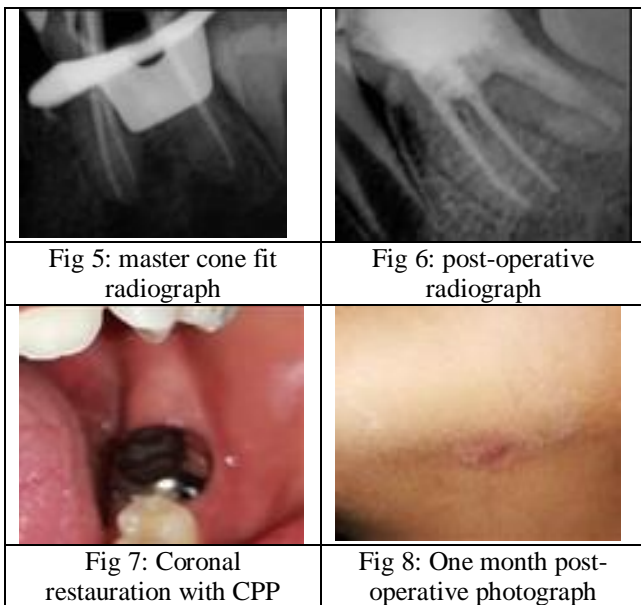
The treatment of the two presented cases consisted on a non-surgical endodontic treatment of the causative tooth in two visits;

After placing an impervious rubber dam, the root canals were prepared using k-files 10-15, and then a glide path was performed using e-flex path files, shaping using Ni-Ti rotate files in continuous rotation, along with vigorous irrigation by sodium hypochlorite 5% in alternation with chlorhexidine 2% after neutralization by saline.

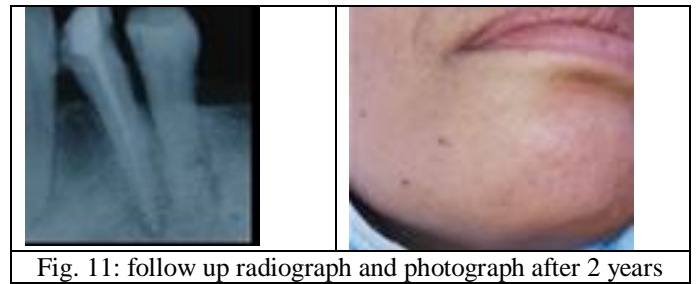
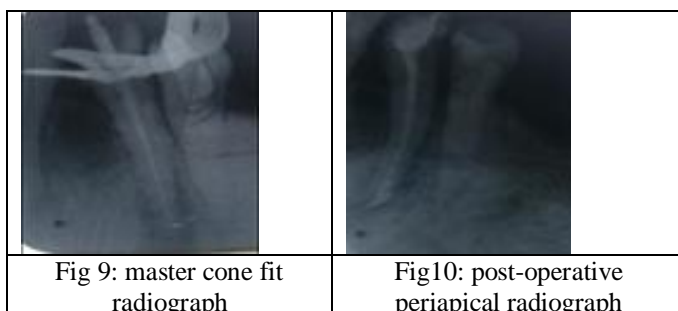
Calcium hydroxide was inserted as an intracanal medicament during 2 weeks to reach its highest efficacy.

The patient was recalled after 2 weeks to complete root canal obturation; after removal of the calcium hydroxide final irrigation was performed; irrigation by liquid EDTA for 2 minutes, neutralized by saline and followed by sodium hypochlorite irrigation and ultrasonic activation, canal drying and gutta percha points inserting along with resin-based sealer (Adseal®). And then hermetic coronal obturation was performed. No antibiotics prescription was needed.

For the first case, 1 month later the sinus tract was partially healed with fistula closure (fig 5.6.7.8)



For the second case it only took 2 weeks to the extraoral lesion to be partially resolved. The patient is reviewed two years later and the lesion was totally healed.



III. DISCUSSION

Cutaneous sinus tract is a complication of a draining infection, the diagnosis of the odontogenic origin is an uncommon condition which present a challenging situation to the physician.

In fact, pulp can be necrotic due to several pathologies: carious lesion, trauma, periodontal disease...etc. Left untreated, this infection can spread to the periapical area causing periapical periodontitis, accumulation of bacteria and its by-products stimulates osteoclastic process and then bone destruction and abscess formation.

The development of a sinus tract is considered as the final expression of the chronic periapical pathology, which is a drainage way resorbing the medullary bone and conducting the enclosed infected area; the tooth apex, following the path of least resistance, to an epithelialized open area which is the skin surface [2].

The extraoral submerge of the sinus tract is significantly less common than the intraoral location so that it is of sinus always misdiagnosed with other lesions such as congenital fistula, osteomyelitis, salivary gland fistula, infected cyst, deep mycotic infection, dermatological lesions such as pustules, furuncle , foreign body infection and deep mycotic infection , squamous cell carcinoma, and granulomatous disorder may be superficially similar in appearance to a draining sinus tract of odontogenic origin but they are not true sinus tracts[3] ,in addition to chronic tuberculosis, and gumma of tertiary syphilis [4].

This misdiagnosis is caused by ignorance of the possible odontogenic origin, due to the absence of dental symptoms and that the fistula is usually far away from the causative tooth, as well as the low prevalence of this clinical entity, it was reported that it does not exceed 0.9% [5].

So, the patient will visit a dermatologist or general surgeon with a chief complain of the draining fistula only, and then undergo ineffective antibiotic long-term therapy, unnecessary biopsies, surgical attempts to remove the sinus tract, and even radiotherapy [6]. In addition to the uselessness of these treatments, these invasive interventions might generate scarring that is difficult to treat.

Indeed, all these procedures may reveal for a short time the problem but then come to fail, and the draining fistula reappear, since the real cause was not resolved [6].

Thus, to prevent the patient from suffering, a thorough clinical and radiographic examination should be established with keeping in mind the possible odontogenic origin.

The location of the fistula depends on numerous factors such as path of least resistance, gravity, virulence of microorganisms, host resistance and anatomic arrangement of neighboring musculature and fasciae [7].

If the apices of the teeth are above the maxillary muscle attachments and below the mandibular muscle attachments, the infection may spread to extra-oral regions [8].

Several studies shows that 80% of described cases have involved mandibular teeth, and 20% involved maxillary teeth [8]. So, we are likely to find sinus tract fistula on the chin, jaw or the submental or submandibular region, less commonly on the cheek, canine space, nasolabial fold, nostrils, neck and inner canthus of eye [8].

The lesion classically takes form of an erythematous, painless tracts of maximum 20mm in size and intermittent drainage, it appears as a papule or nodule or can be depressed beneath the skin [7]. The extraoral palpation may reveal a cordon-like tract [8].

Due to the complexity and unpredictability of the infection drainage pathway, all teeth must be examined, maxillary and mandibular, searching for a carious, fractured or discolored tooth.

Radiographic examination, whether conventional or advanced, is crucial to find out the presence of radioluencies related to the suspected tooth.

In a conventional radiographic examination, a gutta percha cone, preferably no 25, is inserted into the sinus tract if it is patent to visualize its path and confirm the causative tooth.

The application of cone beam can be helpful to visualize the infection origin and the path of the sinus tract when conventional radiographs cannot reveal unusual findings, since it only shows structures on two dimensions.

The treatment consists on treating the infected tooth, by endodontic treatment if it is restorable or extraction if it is not. There is no need to antibiotic therapy since the pus was carried out chronically through the fistula.

The healing of the sinus tract is conditioned by the success of the endodontic treatment, we must ensure that the three pillars of Shielder's triad: shaping, irrigation and 3D obturation, are performed in the optimal conditions. And then the sinus tract is expected to disappear within 7 to 14 days [7].

The main intracanal irrigants used are sodium hypochlorite (NaOCl) and Chlorhexidine (CHD), the sodium hypochlorite is known for its organic tissue dissolving property and broad spectrum of bacteriocidal activity, as well as it is an excellent lubricant [10].

CHD has also interesting characteristics; in addition to the bacteriocidal activity and lubricating properties, the residual antimicrobial activity which known as substantivity offer a major help against chronic pathologies [4].

According to studies, both of these irrigants eliminate the gram positive and the gram negative anaerobic bacteria in 15 minutes [9].

The calcium hydroxide Ca(OH)_2 is the intracanal medicament of choice since it helps to eradicate the bacterial biofilm from the tooth canal walls and the periapex thanks to its alkalinity and bacteriocidal potential, and stimulation of osteogenesis process [4], but some studies shows that one single visit treatment can be successful too if the root canals are disinfected properly, irrigation activation, obturation using bioactive sealer [9].

In the first case presented, the patient has consulted directly the dentistry department, fortunately, so the right diagnosis and treatment were not delayed, and so was the recovery.

For the second case, the patient was referred by its dermatologist after failure of multiple interventions including the multiple prescription of broad-spectrum antibiotics for extended period of time and surgical intervention as an attempt to remove the sinus tract fistula.

To treat the two cases, we realized the endodontic treatment in two visits, the first consisted on cleaning, shaping the canal, and putting intracanal calcium hydroxide. The time duration that calcium hydroxide is used in the canal can affect its effectiveness, it is recommended that the optimum time should be 2 weeks [7].

The patient returned for canal and coronal obturation, no antibiotic prescription was needed since "it cannot eliminate the sinus tract" [5] and the infection was drained chronically through the sinus tract fistula which has spontaneously healed 1 month after the canal treatment for the first case and after 2 weeks for the second without any surgical intervention since the sinus tract is lined by granulation tissue not epithelium [10]. Although a retracted persistent sequel may be an exception for a later esthetic plastic surgical procedure [4].

IV. CONCLUSION

An odontogenic origin of a sinus tract must always be considered, do a complete examination with keeping in mind all the possible diagnosis, an interreferral consultation is crucial to ensure exact diagnosis and early treatment, and to prevent unnecessary suffer, waste of time and eventual esthetic sequels.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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